

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD AND SPECIFICATIONS**

CONTOUR FARMING

(Acre)
CODE 330

DEFINITION

Tillage, planting, and other farming operations performed on or near the contour of the field slope.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following:

- * Reduce sheet and rill erosion.
- * Reduce transport of sediment and other water-borne contaminants.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to sloping land where crops are grown.

This practice is most effective on uniform slopes ranging from 2 to 10 percent that are less than the critical slope length. This practice is less effective on slopes that are steeper than 10 percent.

This practice is not well suited on severely undulating topography because of the difficulty establishing continuous baselines and minimizing point rows.

CRITERIA**General Criteria Applicable to All Purposes**

The Revised Universal Soil Loss Equation (RUSLE) shall be used to determine when contour farming alone or in combination with other conservation practices is an alternative for

reducing sheet and rill erosion to an acceptable level.

Determine the critical slope length for contour farming using the Field Office Technical Guide, Section I-(iv)-A-17, Figures 1 through 23 for the cover-management condition that best represents the crop rotation. Contour farming shall not be used on any slope that exceeds the critical slope length unless conservation treatments are installed to reduce the true slope length.

The maximum row grade shall not exceed one-half of the up and down hill slope gradient used for erosion prediction or 2 percent, whichever is less. Up to 3 percent row grade may be permitted for short distances up to 150 feet as the crop rows approach a maintained stable outlet.

When the in-row grade reaches the maximum allowable design grade, a new baseline shall be established up or down slope from the last contour pattern. Baselines are the contour lines surveyed on the field to establish the tillage and row pattern.

Surface flow from contoured crop rows must exit at a stable outlet. Stable outlets include grassed waterways, underground outlets for terraces or diversions, water and sediment control basins, field borders, filter strips, or similarly stabilized areas. Areas of concentrated flow will be seeded to permanent vegetative cover and will be maintained to prevent erosion.

Tillage, planting, and cultivation operations up and down the slope at the ends of contour farming rows may increase soil erosion losses. Field border plantings shall be established to replace end rows when concentrated water flows will occur or where up and down hill farming will result in soil losses exceeding acceptable limits established for

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the field. Field borders planted to eliminate end rows will be established according to the FIELD BORDER (386) standard and shall be wide enough to accommodate turning farm equipment without additional end rows.

When contouring is used in conjunction with properly spaced terraces and end rows are planted over the terraces, planting field borders will not be required.

Where contour row curvature becomes too sharp, establish sod turn strips on the ridge points. In drainage ways establish grassed waterways for turning as well as for the conveyance of concentrated water flows. All turn strips and grassed waterways shall be wide enough to allow the farm equipment to be lifted, turned, and aligned with established row patterns. The vegetative cover shall be established based on the criteria of the appropriate conservation practice standard to meet the desired purpose.

Additional Criteria to Reduce Sheet and Rill Erosion

The grade of the crop rows shall be designed to achieve the greatest soil erosion reduction that is practical for the field.

The rows in a contour system designed on soil with slow to very slow infiltration rates (hydrologic soil groups C and D) or for crops sensitive to standing water for periods less than 48 hours shall be designed with a positive row grade to a stable outlet.

The rows in a contour system on soil with moderate to high infiltration rates (hydrologic soil groups A and B) may be level although a positive grade of at least 0.1 percent may be desired.

Establish stable outlets in place of end rows up and down the slope whenever the slope of the end rows would exceed 3 percent.

Additional Criteria to Reduce Transport of Sediment and Other Water-borne Contaminants

The contour row or furrow system shall be designed to detain runoff water in temporary surface storage. The row grade shall not exceed 0.5 percent. Ridge heights shall not be less than 4 inches.

Areas of existing or potential concentrated flow shall be established in permanent vegetation and managed to reduce the amount of sediment and residue leaving the field area.

CONSIDERATIONS

Prior to design and layout, obstruction removal and changes in field boundaries or shape should be considered to improve the effectiveness of the contour farming system and improve the ease of performing farming operations.

Where field slopes exceed the critical slope length based on the hydrologic soil group, the cover-management condition for the rotation, the 10-year EI, and the slope gradient, consider one of the following alternatives to reduce the effect of the slope length on runoff:

- construct structures that physically alter the slope length (terraces and diversions);
- use vegetative cover in the crop rotation to slow runoff and increase the effective slope length in regard to contouring (contour stripcropping and contour buffer strips); or
- modify the crop production system to improve the cover-management condition for the crop rotation.

Contour systems are more farmable when the rows approach the ends of the field at right angles. This facilitates the turning of equipment and reduces point rows. Consider redesign of fields so that contour rows perpendicular to the ends of the field.

PLANS AND SPECIFICATIONS

Site specifications for establishment and maintenance of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and Operation and Maintenance described in this standard.

Site specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

Design and install the contour farming layout to best facilitate the operation of all machinery used on the field.

Conduct all farming operations parallel to contour baselines that are established by field surveys to maintain grade. Farming operations should start along the baselines and proceed both up and down the slope in a parallel pattern until the patterns meet. Odd areas, if any, will be established between the parallel contour rows. Alter tillage patterns to avoid creating low areas that will redirect surface water flow patterns.

Any field operations conducted up and down the hill slope can cause water concentration and accelerated erosion. Establish and maintain all stable outlets for contour rows and concentrated flow areas.

The establishment and maintenance of a narrow strip (1 to 5 feet wide) of permanent vegetation along any key baseline will help in maintaining the established contours.